

STATE MONITORING OF NATIONAL SCHOOL LUNCH PROGRAM NUTRITIONAL CONTENT

Liisa Hiatt and Jacob A. Klerman

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PREFACE

This study was conducted within RAND's Center for the Study of Food and Nutrition Policy as part of RAND's Child Nutrition Analysis Project (CNAP) with the United States Department of Agriculture's Food and Nutrition Service under "Obtaining States' Nutritional Monitoring Data." This document reports on a study of state nutritional monitoring data and should be of benefit to those interested in the operation of child nutrition programs.

This volume contains the narrative report. An appendix volume (Liisa Hiatt and Jacob Alex Klerman, *State Monitoring of National School Lunch Program (NSLP) Nutritional Content: State-by-State Results*, RAND, MR-1296/1-USDAFNS, 2001) provides the detailed state responses.

The main text of this report was written in the fall of 1999. Since that time, there have been some changes—for example, the Dietary Guidelines for Americans were updated in 2000. The text of this report mentions only the 1995 update because the 2000 update was not completed when the report was written.

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SUMMARY

INTRODUCTION

As part of the School Meals Initiative (SMI), the U.S. Department of Agriculture-Food and Nutrition Service (USDA-FNS) now requires each state to regularly review the nutritional content of food served by each School Food Authority (SFA) as part of the National School Lunch Program (NSLP). While states must monitor the nutritional content of school meals, they are not required to forward any information to USDA-FNS. However, USDA-FNS is required to measure progress against Objective 2.1 of FSN's 1997–2002 Strategic Plan, which states that it will “ensure that school meals are consistent with the Dietary Guidelines for Americans [DGA] and the Recommended Daily Allowances [RDA].” In September 2000, FNS issued a completely revised Strategic Plan, which established goals for school lunches under a new Objective 1.3: “Improved nutritional quality of meals, commodities, and other program benefits.” The “target” established under Objective 1.3 is “By 2005, reach less than or equal to 30% calories from total fat and less than 10% calories from saturated fat; maintain calorie, vitamin and mineral content at greater than or equal to 33% of RDA.” To measure progress, USDA-FNS needs to produce state and national aggregations of the nutrient content in school lunches to show that meals in a given state or in the country as a whole are consistent with the DGA and RDA. In addition, FNS needs to do this while imposing minimal reporting burdens on the states.

The USDA-FNS contracted with RAND to look more carefully at how some states are performing SMI reviews and how they might be able to transmit data with limited additional burden. In particular, it asked seven states to work collaboratively with RAND—through on-site, in-depth interviews—to explore possible reporting systems: California, Georgia, Nebraska, New Jersey, New York, Texas, and Wisconsin. These states were chosen as representative of regional differences across the country and of methods for conducting SMI reviews. This report describes the results of the analysis of possible approaches for states to report the results of their nutritional reviews to USDA-FNS.

WHAT DATA SHOULD BE PROVIDED?

To design an appropriate system, USDA-FNS must determine what information from the SMI reviews it needs, while again minimizing the burden to the states. Starting with an exhaustive list of data elements to collect, we worked with the selected states to identify a set of required elements; we also identified some optional elements and some elements that should not be included. The three sets are summarized in Table S.1.

Table S.1

Summary of Data Elements to Be Required, Optional, and Not Included

Required Elements	Optional Elements	Elements Not Included
Type of SFA	SFA identifier	Name of reviewer
Menu planning system used	Review week	Dates of review
Analysis lunch only, breakfast only, or lunch and breakfast	Contact person	Standards
Analysis weighted?	Classification of “any reasonable approach”	
Review done by grade or age	Urban or rural area	
Lowest grade/age	Size of district	
Highest grade/age	Comments	
Estimated average daily participation		
Actual output from analysis software		

HOW DO STATES CURRENTLY PERFORM SMI REVIEWS?

To understand each state's ability to report the required information and to develop a system that would impose the minimum burden on the states, we examined how the states currently perform SMI reviews. Overall, the seven states interviewed followed a similar process in which the SFA gathers information for review, the nutrient analysis is performed, a correction plan is developed with the SFA, and the review is completed. However, each state operates slightly differently. Table S.2 summarizes the information collected on how SMI reviews are conducted in the seven states, showing the variation. Whether the state office receives the data and whether the state has compiled it into any type of central database are particularly pertinent. Except for Texas, all the states receive the data, and most have databases.

HOW SHOULD THE DATA BE COLLECTED?

Although there are a number of options for collecting the data, given USDA-FNS's stated goal of collecting data at minimal cost to the states, it is appropriate for the USDA-FNS to accept the data in any reasonable format the states are willing to provide, including USDA file formats, other file formats from states (assuming the formats

Table S.2

Summary of How SMI Reviews Are Performed in the Seven States

State	Who Does Analysis		Weighted Analysis?	State Has Data?*	Software Used
	Reviewer	Other			
California	X	X	Some	Y, DB	NutriKids
Georgia	X	X	Y	Y, NDB	NutriKids
Nebraska		X	Y	Y, DB	NutriKids
New Jersey		X	Y	Y, NDB	NutriKids
New York	X	X	Y	Y, DB	NutriKids
Texas	X		N	N	NutriKids
Wisconsin	X	X	Y	Y, DB	NutriKids

*DB = database or spreadsheet; NDB = no database or spreadsheet

contain all the required data elements), and through an Internet form. USDA-FNS should also consider ensuring that whatever format is used, the states will be able to customize the databases for their own purposes. Finally, given the five-year SMI review cycle, USDA-FNS will need only a moderate-sized database, which can be run on the standard desktop personal computer purchased today (late 1999). The tabulations required are straightforward and could be precoded. An analyst with rudimentary experience in statistical analysis should be able to program the required queries without major assistance.

DISCUSSION OF THE CONTENT OF THE SMI EFFORT

We also considered the SMI effort more broadly. We found some positive effects of the current review procedures. The experience of preparing for a review itself raises consciousness of the nutritional issues, and the results of the review lead to improvements in the nutritional content of meals.

We also found three issues about the quality of the data collected. First, states have concerns about inter-rater reliability; two reviews of the same meals might reach different conclusions. Although such problems are nearly impossible to eliminate, they can be minimized by promulgating common procedures for reviews, providing formal initial and ongoing training in those procedures, and initiating a program to test the quality of completed reviews.

Second, even if the reviews are perfect, are they representative of meals at the SFA level? In other words, how much information do the results of a review (of meals served one given week in a given school) yield about all the meals served in that school (or SFA)? To address this issue, USDA-FNS could fund a small pilot study that would randomly select a small group of SFAs and collect SMI type information across schools and through time.

Third, are the reviews at the state level representative? While the USDA Strategic Plan requires information about *all meals served*, review processes can only collect information about *meals reviewed*. Standard arguments from statistical sampling imply that it is possible to construct a statistically accurate portrait of all meals served by a group of SFAs (e.g., a state) by averaging results across multiple re-

views and across individual weeks from individual schools from multiple districts. For these arguments to apply, reviewed meals must be selected randomly, but the current procedures do not guarantee random selection.

In addition, more precise estimates could be obtained with a different review cycle. Currently, one review is required per SFA in each five-year cycle, regardless of district size. However, SFAs vary in size dramatically. For example, about half the meals in New York State are served by the New York City public school system. Statistical considerations suggest allocating more resources to large SFAs and fewer resources to smaller SFAs.¹ Such a procedure would also ease the burden on smaller SFAs, probably reducing opposition to the SMI effort.

¹Effective allocation of the sample to minimize variance across states as a whole requires more resources for larger SFAs.

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We also wish to thank the staff of the seven state monitoring agencies we visited. They were uniformly gracious hosts who shared their time generously and candidly answered our questions.

Within RAND, this report has benefited from Paul Steinberg's work as a Communications Analyst and from Natasha Kostan and Christopher Dirks, who provided secretarial support. Joy Goodwin helped with the preparation of the original proposal and Mina Kimmerling helped with some of the fieldwork. Lynn Karoly provided useful internal RAND reviews.

ACRONYMS

CNAP	Child Nutrition Analysis Project
CRE	Coordinated Review Effort
DGA	Dietary Guidelines for Americans
EIAC	Education Information Advisory Committee
ESC	Educational Service Center
FNS	Food and Nutrition Service
FR	Federal Register
GPRA	Government Performance and Results Act
NSLP	National School Lunch Program
NuMenus	Nutrient Standard Menu Planning System
RCCI	Residential Child Care Institution
RDA	Recommended Daily Allowance
RE	Retinyl Equivalents
SBP	School Breakfast Program
SFA	School Food Authority
SFP	Summer Feeding Program
SMI	School Meals Initiative

SNDA	School Nutrition Dietary Assessment
TEA	Texas Education Agency
USDA	U.S. Department of Agriculture

Chapter One

INTRODUCTION

As part of the School Meals Initiative, the U.S. Department of Agriculture–Food and Nutrition Service (USDA-FNS) now requires each state to regularly review the nutritional content of food served by each School Food Authority (SFA)¹ as part of the National School Lunch Program (NSLP). However, the data collected as part of this system of reviewing nutritional content are not currently reported to anyone outside of the state in which they are collected.² This report describes the results of a RAND analysis of possible approaches for states to report the results of their nutritional reviews to USDA.

POLICY CONTEXT

In this section, we briefly review the history of the National School Lunch Program, the School Meals Initiative (SMI), and SMI reviews.

USDA-FNS School Nutrition Programs

The NSLP was established in 1946 by the National School Lunch Act. The legislation's preamble stated its goals:

¹An SFA is usually a public school district, a private school, a charter school, a residential child care institution (RCCI), or a juvenile detention center.

²At the time this report was written, FNS did not require any data from the states. Subsequently, some of the regional offices of FNS have required states to submit these data quarterly. Specifically, New York reported to us that the Northeast Region requires quarterly submissions.

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as a measure of national security, to safeguard the health and well-being of the Nation's children and to encourage the domestic consumption of nutritious agricultural commodities and other food, by assisting the States, through grants-in-aid and other means, in providing an adequate supply of foods and other facilities for the establishment, maintenance, operation, and expansion of nonprofit school lunch programs.³

Through subsequent amendments and increased funding, the program has expanded to 95,000 public and private schools and residential child care institutions. More than 26 million children receive free or reduced-price lunches every day. Roughly 92 percent of schoolchildren in the United States are in schools with lunch programs, and about 58 percent participate in the program on an average school day. For fiscal year 1998, the program had a budget of \$4.2 billion.⁴

While the NSLP was intended to "safeguard the health and well-being of the Nation's children,"⁵ through 1996 the program's nutritional focus was on broad food groups and total calories. In those fifty years, the nutritional status of Americans and scientific understanding of proper nutrition both changed. Those changes were reflected in a series of Dietary Guidelines for Americans (DGA) beginning in 1980 and most recently in 1995.⁶ The 1990 DGA and the Food Pyramid that was developed to publicize them reflected significant changes in the content of the guidelines. The language of the new guidelines was more positive, was oriented toward the total diet, and provided more specific information regarding food selection. For the first time, numerical recommendations were made for intakes of dietary fat and saturated fat.⁷ These changes were further refined in the 1995 DGA.

³Section 2 of the National School Lunch Act, 42 USC 1751.

⁴From <http://www.fns.usda.gov/cnd/Lunch/AboutLunch/faqs.htm>.

⁵Section 2 of the National School Lunch Act, 42 USC 1751.

⁶When this report was written, the 1995 DGA were the most recent. The 2000 version has since come out but is not referenced in this report.

⁷*Dietary Guidelines Advisory Committee*, 1995, Appendix I: History of Dietary Guidelines for Americans.

Concern about the content of school meals and their role in promoting the nutrition of children was further focused by the 1992 School Nutrition Dietary Assessment (SNDA). It found that many school meals did not meet the then-current 1990 DGA. The study showed that the average school lunch had 27 percent more calories from fat, twice as much sodium, and 50 percent more calories from saturated fat than the recommendations.⁸ In addition, SNDA found that children who ate the hot school lunch were consuming significantly higher numbers of calories from fat than children who obtained their lunches from other sources.⁹

SCHOOL MEALS INITIATIVE AND THE PROPOSED RULE

In response, public hearings were held and USDA created a plan for the NSLP that ultimately became the School Meals Initiative (SMI). From the public comments, USDA developed five Guiding Principles for SMI:

- **Healthy Children:** Provide school meals that promote health, prevent disease, and meet the Dietary Guidelines for Americans (DGA).
- **Customer Appeal:** Serve meals that children will want to eat.
- **Flexibility:** Reduce paperwork, streamline reporting systems, recognize differences, and offer different methods for meeting NSLP guidelines.
- **Investing in People:** Provide technical assistance to schools so that they can improve the nutritional content of school meals.
- **Building Partnerships:** Create partnerships with public and private entities to ensure continuing collaborative efforts.¹⁰

On June 10, 1994, USDA published a proposed rule that updated and expanded the nutrition standards for school meals and required them to meet the DGA. In particular, school meals were to satisfy

⁸Burghardt, et al., 1993.

⁹60 FR 31195, June 13, 1995.

¹⁰60 FR 31196, June 13, 1995.

quantitative standards for percentage of calories from fat, percentage of calories from saturated fat, protein (g), calcium (mg), iron (mg), vitamin A (RE), vitamin C (mg), and calories (kcal). In addition, qualitative goals stated that school meals should show a reduction in the level of cholesterol and sodium and an increase in the level of fiber. Since the rule gives no quantitative standards with which to measure these changes, states were to be allowed to achieve these guidelines in one of two ways. They could choose a quantitative standard for these nutrients and show how the nutrient content of their school meals compares to this standard or they could choose to use an SFA's initial nutrient analysis as a baseline and show the change in subsequent nutrient analyses. See Table 1.1 for the current standards by grade range.

To assure that school meals served satisfied the DGA, the proposed rule would have replaced the NSLP's rigid food-based menu planning system that had been in place since the beginning of the program with a menu planning system based on computerized nutrient analysis. In particular, the Nutrient Standard Menu Planning (NuMenus) system would have required SFAs to perform a nutrient analysis, using USDA-approved computer software, on all foods offered as part of a reimbursable meal in the meals programs prior to the service of the meals.

Table 1.1
Nutrient Standards—NuMenus and Assisted NuMenus

Nutrient	Standards by Grade Range			
	Preschool	K-6	7-12	Optional K-3
Calories (kcal)	>517	>664	>825	>633
Total Fat (as % of food energy)	≤30%	≤30%	≤30%	≤30%
Saturated Fat (as % of food energy)	<10%	<10%	<10%	>10%
Protein (g)	>7	>10	>16	>9
Calcium (mg)	>267	>286	>400	>267
Iron (mg)	>3.3	>3.5	>4.5	>3.3
Vitamin A (RE)	>150	>224	>300	>200
Vitamin C (mg)	>14	>15	>18	>15
Cholesterol (mg)	A reduction in level of cholesterol			
Sodium (mg)	A reduction in the level of sodium			
Fiber (g)	An increase in the level of fiber			

The computerized nutrient analysis would have provided the SFA with a nutrient analysis of each proposed menu. Given that analysis, it would have been straightforward to verify that the proposed menu was in compliance with the DGA, and thus with the requirements of the NSLP authorizing legislation. If trial menus were not in compliance, SFAs could iteratively make adjustments to the trial menu until it was in compliance.

The proposed rule recognized that not all SFAs would have the capability to do nutrient analysis and therefore provided for a variation on this system. That variation, called Assisted NuMenus, allowed the SFA to have a third party perform the nutrient analysis. Finally, the proposed regulation required the state agencies to assess the nutrient analyses being performed by the SFAs and to take appropriate actions if either the analyses were not being performed correctly or the meals were not in compliance with the DGA.

Thus, through NuMenus or Assisted NuMenus, the proposed rule included a mechanism through which school meals could plausibly be expected to be in compliance with the DGA by the 1998–1999 school year. However, before the rule could be finalized, PL 103-448, the Healthy Meals for Healthy Americans Act of 1994, was passed. Responding to widespread complaints about the burden of nutrient analysis, the legislation instructed USDA to allow SFAs to continue using a food-based system of menu planning, in addition to NuMenus or Assisted NuMenus. The legislation also required that school meals be in compliance with the nutrient requirements by the 1996–1997 school year (two years earlier than under the proposed rule). However, since the legislation allowed menu planning systems that did not automatically involve nutrient analysis, there was no direct mechanism through which food-based SFAs could be expected to verify that their meals were indeed in compliance with the DGA.

On January 27, 1995, USDA published a revised proposed rule. It supplemented the June 10, 1994 proposed rule. It incorporated the shorter timeline and the inclusion of food-based menu planning systems from PL 103-448. In the January rule, USDA proposed a food-based system, called Enhanced Food-Based menu planning, that was very similar to the previous food-based system. The only difference from a traditional food-based system was the inclusion of more fruits and vegetables and grains and breads. To implement the

requirement that NLSP meals meet the DGA, but in the absence of a requirement that every SFA perform a computerized nutrient analysis for every menu, the revised proposed regulation required each State Agency to monitor those SFAs using food-based systems. That monitoring was to consist of a nutrient analysis of each SFA at least every five years.

THE FINAL RULE AND THE HEALTHY MEALS FOR CHILDREN ACT

The final rule, which was published June 13, 1995, in the *Federal Register* and was based on the proposed rules from June 1994 and January 1995. In May 1996, Congress enacted the Healthy Meals for Children Act (PL 104-149), which added two more menu planning systems—the system that had been in place since 1946 (Traditional Food-Based) and another called “Any Reasonable Approach.” Under the latter option, states could develop their own menu planning system as long as it met the requirements laid out by FNS for school meals and nutrition.

Since the final regulations allowed for five different menu planning systems (see Table 1.2), several of which did not include having the SFA perform nutrient analysis, it required much more work for the State Agency than the June 1994 version of the rule would have. Under the original proposed rule, all SFAs would have been required to perform their own nutrient analyses or hire someone to do the analyses because they would have had to use NuMenus or Assisted

Table 1.2
Menu Planning Systems in the NSLP

Menu Planning System	Description
NuMenus	Nutrient analysis done by SFA
Assisted NuMenus	Nutrient analysis done by third party (e.g., State Agency or outside contractor)
Traditional food-based menu planning	Similar to old system; no nutrient analysis except during SMI review
Enhanced food-based menu planning	Similar to old system but with more fruits, vegetables, bread, and grains; no nutrient analysis except during SMI review
Any reasonable approach	Any other system approved by USDA

NuMenus. While the final rule and the mandates under the Healthy Meals for Children Act allowed the SFAs more flexibility, they also gave the SFAs the opportunity to choose menu planning systems that did not require them to perform their own analyses. Therefore, the states were required to put a system in place that would allow state staff or contractors to perform the analyses.

Under the current SMI regulations, states are required to monitor the nutritional content of school meals, but they are not required to forward any information to USDA—either about which reviews have been completed or about the nutritional content of the meals reviewed or about the improvement plans developed. FNS, however, is required to measure progress against Objective 2.1 of FNS's 1997–2002 Strategic Plan, which states that FNS will “ensure that school meals are consistent with the Dietary Guidelines for Americans and the Recommended Daily Allowances.” The “target” established under Objective 1.3 is “By 2005, reach less than or equal to 30% calories from total fat and less than 10% calories from saturated fat; maintain calorie, vitamin and mineral content at greater than or equal to 33% of RDA.” To do this, FNS needs to produce state and national aggregations of the nutrient content in school lunches, so that FNS can show that meals in a given state or in the country as a whole are meeting the given objective of ensuring that school meals are consistent with the Dietary

Guidelines and the RDAs. In the short-term, USDA desires “to identify potential reporting systems that could obtain for FNS the data necessary to measure the nutrient content of school lunches against the nutrient standards in Objective 2.1 of FNS's strategic plan.”¹¹ Specifically, FNS staff “need to aggregate nutrient analysis data from all SMI reviews in a state so that the aggregated data represents the nutrient content of all reviewed meals in the state [and] aggregate nutrient analysis data from all SMI reviews nationwide so that the aggregated data represents the nutrient content of all reviewed meals nationwide.”¹²

¹¹Statement of Work, Child Nutrition Analysis Projects, Task Order #4.

¹²Ibid. Note that this Statement of Work refers to “reviewed meals” while the Strategic Plan refers to school meals in general. See Chapter 5 for a discussion on “meals reviewed” versus “meals served” and statistical sampling.

OBJECTIVES AND APPROACH

To explore issues related to state reporting of the results of SFA-level SMI review, USDA contracted with RAND to conduct a closed-response telephone survey of all 50 states. After the original RAND interview protocol was developed and reviewed by the Education Information Advisory Committee (EIAC), USDA redesigned the task to involve in-person, in-depth, interviews with State Child Nutrition Directors in seven volunteer states. This change was made to respond to concerns of committee members and other State Child Nutrition Directors that FNS was performing the survey as a precursor to mandating a nationwide reporting system for SMI data. Rather than mandate anything, FNS decided to look more carefully at how some states are performing SMI reviews and how they might be able to transmit data with limited additional burden.

FNS asked seven states to work collaboratively with RAND—through on-site, in-depth interviews—to explore possible reporting systems. FNS chose the seven states to be used for the case studies. Figure 1.1 shows the seven states, which were chosen to represent very different methods for performing SMI reviews and the seven FNS regions. The seven volunteer states are shaded and the thick black lines outline the regions they represent.

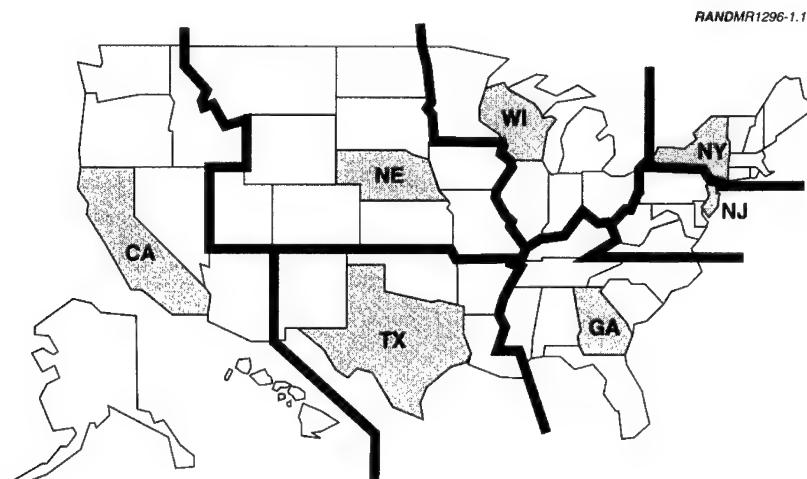


Figure 1.1—Seven Volunteer States Selected and the FNS Regions

At the beginning of 1999, the RAND team contacted the State Child Nutrition Directors or other main contact in each of these seven states by telephone to schedule the interviews. The interview protocols for the site visits were based on the interview protocol developed for the original telephone survey, with additional probes to obtain specific details on how the SMI review process worked in that state and the likely impact of a data request from FNS. After the initial telephone contact, copies of the interview protocol were faxed to the states. State contacts were asked to complete a short background questionnaire and return it to RAND before the scheduled meeting. The short background questionnaire included questions about the number of SFAs in the state and the number of SMI reviews completed. One or two RAND staff members visited each of the states for an in-depth interview. After the interview, the RAND team compiled the state official answers to the interview questions and sent the written answers back to the states for comments, giving them the opportunity to correct any misinformation or add any missing information.

INDIVIDUALS SELECTED FOR INTERVIEWS IN THE SEVEN STATES

In each state except California and Wisconsin, the State Agency Director was contacted and that person assisted us in arranging to speak to other key people. In California and Wisconsin, the original contact person was someone within the Agency, though not the director. Again, the contact person arranged a meeting at which time RAND spoke to the contact and to other important individuals in the state. See Appendix B for a complete list of the individuals interviewed in each of the seven states.

ORGANIZATION OF THIS DOCUMENT

This document describes the results of those site visits and their implications. Chapter 2 discusses what data elements should be sent to FNS to make analysis possible, which elements could be useful but are not necessary, and which elements we recommend against collecting. Chapter 3 describes SMI reviews in general terms and how they are conducted in the seven volunteer states. Chapter 4 discusses how the data elements should be sent to FNS. Chapter 5 dis-

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cusses some broader issues in the design of the SMI review effort. The complete interview protocol can be found in Appendix A of this document. The completed responses to the interview protocol for all seven states can be found in an appendix volume.

Chapter Two

WHAT DATA SHOULD BE PROVIDED?

Although the states are required to conduct SMI reviews, USDA-FNS currently receives no information on the results of the reviews or even which reviews have been conducted. The main purpose of this study was to explore approaches that USDA could use to collect information on the results of SFA-level SMI reviews, while imposing minimal burden on the states and the SFAs. To design an appropriate system, USDA needs to determine what information should be reported and how that information should reach USDA. We discuss "what" in this chapter and "how" in Chapter 4.

What should be collected depends on the uses USDA plans to make of the information it receives. To assess progress toward the items in its strategic plan, USDA would like to be able to tabulate the share of meals served in reviewed schools that meet each of the guidelines (and combinations of the guidelines). Furthermore, USDA would like to be able to do the tabulations by state, type of institution, and age/grade range.

Among the items we discussed with State Agency staff during the site visits was a list of data elements to be collected (see the complete interview protocol in Appendix A). FNS provided the initial list. During the discussion with the states and during our own analysis, we reconsidered the list of elements to be collected. The list included in Appendix A is an exhaustive list of potential data elements to collect. However, it appears that not all of these elements are necessary and some of them probably should not be collected at all.

We begin by describing the data elements that we recommend that USDA should collect, along with some that might be useful but that

are not necessary for analysis. We then describe the elements that were considered for inclusion (either because they were suggested by USDA-FNS or by a state during an interview), but that we recommend not be included.

REQUIRED ELEMENTS

The following screen graphically depicts the list of data elements that we have concluded USDA needs to perform its desired tabulations.

Type of SFA: An indicator for public school or school district, private school or school district, residential child care institution (RCCI), or other type of SFA is important because different types of SFAs may be better prepared for SMI reviews than others. All the states to which we spoke indicated that RCCIs are not ready for SMI because of lack of staff. In addition, FNS has said that it is currently focusing its resources helping SFAs meet SMI requirements. Therefore, FNS will need to know whether results are for an RCCI or not. Although not necessarily collected as part of the current SMI review, this data element should be very easy for the states to collect in the future. The software should include a menu of choices.

Type of SFA	Answer Code
Public School or District	1
Private School or District	2
RCCI	3
Other	9

Menu Planning System Used: An indicator for traditional food-based menu planning, enhanced food-based menu planning, nutrient standard menu planning, assisted nutrient standard menu planning, or “any reasonable approach” is needed. Depending on the type of menu planning system used, the SFA may do the nutrient analysis or the state may do it. Knowing who did the analysis will be useful if FNS sees consistent problems with either the state’s management of analysis or the way schools are doing analysis. Also, states have to be aware of the menu planning system used in order to proceed with the SMI review. Therefore, this information should be readily available during the review and will only need to be added to

School Meals Initiative (SMI) Review, 1999–2000													
<p>SFA: <input type="text" value="1234"/> Site: (optional) <input type="text"/></p> <p>About the SFA: <input type="text" value="123456789"/></p> <p>Type of School Food Authority: <input type="text" value="123456789"/></p> <p>Menu planning system used: <input text"="" type="text" value="Clarification of other USDA approved menu planning system (optional)</input></p> <p>We use another USDA approved menu planning system because of the especially unique characteristics of our SFA. <input type="/></p>													
<p>Meal Details:</p> <p>Average daily number of lunches served during week for which analysis was done: <input type="text" value="4500"/></p> <p>Actual Content from:</p> <p>Analysis Software Output:</p> <table border="1"> <tr> <td>Calories (Kcal): <input type="text" value="5000"/></td> <td>Carbohydrates (g): <input type="text" value="5"/></td> </tr> <tr> <td>Fat (g): <input type="text" value="5"/></td> <td>Saturated Fat (g): <input type="text" value="5"/></td> </tr> <tr> <td>Protein (g): <input type="text" value="5"/></td> <td>Cholesterol (mg): <input type="text" value="5"/></td> </tr> <tr> <td>Calcium (mg): <input type="text" value="5"/></td> <td>Sodium (mg): <input type="text" value="5"/></td> </tr> <tr> <td>Iron (mg): <input type="text" value="5"/></td> <td>Vitamin A (RE): <input type="text" value="5"/></td> </tr> <tr> <td>Vitamin C (mg): <input type="text" value="5"/></td> <td>Fiber (g): <input type="text" value="5"/></td> </tr> </table> <p>Add Record</p>		Calories (Kcal): <input type="text" value="5000"/>	Carbohydrates (g): <input type="text" value="5"/>	Fat (g): <input type="text" value="5"/>	Saturated Fat (g): <input type="text" value="5"/>	Protein (g): <input type="text" value="5"/>	Cholesterol (mg): <input type="text" value="5"/>	Calcium (mg): <input type="text" value="5"/>	Sodium (mg): <input type="text" value="5"/>	Iron (mg): <input type="text" value="5"/>	Vitamin A (RE): <input type="text" value="5"/>	Vitamin C (mg): <input type="text" value="5"/>	Fiber (g): <input type="text" value="5"/>
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Iron (mg): <input type="text" value="5"/>	Vitamin A (RE): <input type="text" value="5"/>												
Vitamin C (mg): <input type="text" value="5"/>	Fiber (g): <input type="text" value="5"/>												
<p>Analysis Details:</p> <p>Was analysis for lunch only, breakfast only, or both and breakfast? <input type="text" value="1"/> <input type="text"/></p> <p>Was analysis weighted? <input type="text" value="2"/> <input type="text"/></p> <p>Was analysis done by grade range or age range? <input type="text"/> <input type="text"/></p> <p>Lowest grade/age range used for analysis: <input type="text" value="1"/> <input type="text"/></p> <p>Highest grade/age range used for analysis: <input type="text" value="12"/> <input type="text"/></p> <p>Comments: (optional) <input type="text" value="The data are a bit different with previous entries because of the special circumstances we faced this year."/></p>													

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the information recorded as part of the review. The software should include a menu of choices.

Type of Menu Plan	Answer Code
Nutrient Standard Menu Planning	1
Assisted Nutrient Standard Menu Planning	2
Enhanced Food-Based	3
Traditional Food-Based	4
Any Reasonable Approach	9

Analysis Lunch Only, Breakfast Only, or Lunch and Breakfast: FNS is interested only in analyses of lunch menus for this project. However, some reviews and analyses are completed for both lunch and breakfast. Therefore, FNS needs to know which meals are covered by an analysis. This information will be provided by the SFA. As with the type of SFA and the type of menu plan, it will merely need to be added to the information recorded. The software should include a menu of choices.

Meal Analyzed	Answer Code
Lunch Only	1
Breakfast Only	2
Lunch and Breakfast	3

Analysis Weighted: Some analyses are weighted, either by type of entrée served or by all menu items—in this case, weighting refers to allowing for differences depending on the number of portions of a particular entrée or other item that are served. If pizza and chicken are both served, but pizza is served to 75 kids and chicken to only 25, then the pizza would be weighted 75 percent and the chicken only 25 percent in the analysis. Knowing whether an analysis was weighted or not allows USDA to make comparisons among similar strategies. For SFAs using NuMenus or Assisted NuMenus in states where weighting is not mandated, the state will have to find out from the SFA whether weighting was used or not. For the SFAs using other menu planning systems, the state will do the analysis itself and will know whether weighting was used. The software should include a menu of choices.

Analysis Weighted	Answer Code
Yes, entrée only	1
Yes, all menu items	2
No	3

Review Done by Grade or Age: An indicator of grade or age review is needed to interpret the next two elements. This information is needed to apply the appropriate nutrient standards and so will be readily available. The software should include a menu of choices.

Review Type	Answer Code
Age Range	1
Grade Range	2

Lowest Grade/Age: Lowest age or grade range for the analysis being reported is important to assess which standards should be used and to allow for comparisons by age or grade range. Some states are using standardized age/grade ranges and others are using customized

Lowest Grade/Age	Answer Code
P	19
K	20
1	1
2	2
3	3
4	4
5	5
6	6
7	7
8	8
9	9
10	10
11	11
12	12
13	13
14	14
15	15
16	16
17	17
18	18

ones. This will allow USDA to see which is being used. This information should already be available since the computer software requires it to determine the standards against which the SFA data should be compared. A menu of answer choices should be included.

Highest Grade/Age: Highest age or grade range for the analysis being reported is important in order to assess which standards should be used and to allow for comparisons by age or grade range. This information should already be available since the computer software requires it to determine the standards against which the SFA data should be compared. The menu of answer choices would be identical to the one for lowest age/grade range.

Estimated Average Daily Participation: This number is the estimated average daily school lunch participation during the SMI review week in the school that administered the SMI review for the student age/grade range covered by this analysis. This figure can be used as a weight so that nutrient analysis results from different schools or different states can be aggregated. With this weighting element, FNS will be able to calculate the nutritional content of the meals that the average child in the reviewed schools is getting, i.e., larger schools get larger weights.¹

This number may not be readily available. Though SFAs have aggregate data on meals served, they may have to estimate the number of meals served for a given age or grade range represented by the analysis. This information can be derived from the same sources used to report the number of meals served in the Coordinated Review Effort. Given the type of analysis that FNS will be able to do with these data, an exact number is probably not critical. Instead, an estimate by the SFA seems sufficient. This is the one required data element that may cause a burden to some of the states.

Actual Output from Analysis Software: These numbers are the data on the eleven items that the USDA requires—calories, fat, saturated fat, protein, calcium, iron, vitamin A, vitamin C, sodium, cholesterol,

¹ See the discussion in Chapter 5 about whether we want to represent meals reviewed or meals served.

and fiber.² The software provides quantitative measures of all eleven elements. This information would come directly from the output of the nutrient analysis.

OPTIONAL DATA ELEMENTS

SFA Identifier: A unique identifier for each SFA is needed to distinguish the records in the database. The SFA agreement number is the natural candidate, but states are somewhat anxious that identifying an SFA in any way, even with a random identifier, may allow FNS to find and punish SFAs with poor results on nutrient analyses. To eliminate this possibility, the FNS software could automatically assign a numeric ID number (e.g., the sequence number). If states wanted to provide this, they could use the SFA identifier that they already have in place with a year appended in order to make it unique for each analysis or they could create an ID number in numeric order as the reviews are completed. If a state decides to include this, the burden would be minimal.

Review Week: The dates for the week in which menus were reviewed for the nutrient analysis may be useful to see any seasonality effect on the analysis. For example, if an analysis is done the week of Thanksgiving, the school may serve a special holiday meal, which is high in fat. This data element should not be difficult to get because it should be in the NutriKids³ output. However, because of peculiarities of NutriKids, if too many reviews happen on the same week, the reviewers may have to change the dates when entering them since NutriKids can handle only a limited number of reviews in a given week. Therefore, even dates of the review week may be somewhat difficult.

Contact Person: The name of someone FNS can call with any questions. This contact could be the same person for all analyses from

² While FNS does not have quantitative measures for sodium, cholesterol, and fiber, the regulations say that the states should show a decrease in sodium and cholesterol and an increase in fiber. This regulation can be met by creating quantitative measures for these items within the state or by showing changes from one SMI cycle to the next.

³ We have specifically used NutriKids in our text because everyone we spoke to was using NutriKids. Other software packages are acceptable according to FNS, but we have not addressed them because we heard nothing about them in our interviews.

each state or could be different people based on who did the analysis. In either case, this should be relatively easy for states to provide, should they decide to do so. The states suggested that the contact person be the State Director. This data element could be optional because FNS indicates that it does not currently have the staff for going back to respondents to clarify information. If there were questions that absolutely had to be answered, FNS would go back to the State Director for clarification. The State Directors also prefer this approach.

Clarification of “Any Reasonable Approach”: A brief description of any nonstandard menu planning system used could be optional because few SFAs use “any reasonable approach” as a menu planning system. In addition, across SFAs that use “any reasonable approach,” there is little consistency. However, we include it as an optional data element because it may be useful to know the type of system used, especially if the results from the analysis seem different from other analyses in the same state or in schools of similar size and type. Even if the descriptions do not have any consistency across SFAs, they could be useful on an individual basis. Since SFAs have developed their own systems in this case, giving clarification on the approach they use should be very straightforward.

Urban or Rural Area: A designation for urban or rural area is probably best done with U.S. Census Bureau designations, where an urban area comprises “all territory, population, and housing units in urbanized areas and in places of 2,500 or more persons outside urbanized areas.”⁴ This data element would allow FNS to differentiate between large schools in urban and rural areas since, as several states pointed out, schools in rural areas may be less well prepared for SMI reviews. Most SFAs will probably know whether the area they are located in is designated urban or rural. If not, getting this information from the U.S. Census Bureau is easy. The designation would just need to be added to the information sent to the state.

Size of District: A measure of the size of the district—using either enrollment or number of schools. Enrollment would be better since schools can vary widely in size. However, number of schools could

⁴From the U.S. Census Bureau web page at <http://www.census.gov/population/censusdata/urdef.txt>.

be useful if no enrollment figures were available. In either case, the SFA would have to provide this number. Most SFAs will probably know enrollment figures and should be able to provide them readily to the state. This data element would be useful for comparing districts. As several states pointed out, it would not be fair to compare districts with 100 kids to those with 100,000 kids.

Comments: Any additional comments or clarifications that the state wishes to make on the analysis on which they are reporting could be input here. Including this field gives the states a place to document any strange circumstances surrounding a particular review.

DATA ELEMENTS THAT SHOULD NOT BE INCLUDED

Several other data elements were suggested either by FNS or by the states. We recommend against requiring that they be reported. These elements include the name of the person performing the analysis, the date the review was closed, and the standards with which the quantitative elements are being compared.

Name of Reviewer: The states were very strongly opposed to providing the names of reviewers, consultants, or subcontractors. The State Directors consistently stated that since it was their responsibility to oversee the SMI process, FNS should contact them with any questions once the data are submitted. Additionally, if FNS examines the data annually, some of the reviews would be a year or more old. Thus, even if FNS had questions, it is likely that the states would no longer have the answers, so a contact person would be irrelevant.

Dates of Review: The states reported that providing an ending date for a review could be very difficult, though they could probably provide a start. It is often hard to determine when the review is complete. A review may be complete when a correction plan is implemented, when a new analysis is run, when a closeout letter is sent, depending on the state.

Standards: USDA suggested requiring the states to provide the standards against which the data from nutrient analysis are compared. The states, however, noted that in most cases USDA mandates the standards. Thus, knowledge of the type of menu planning system used and the age or grade range is usually enough to identify the

applicable standard. The exception is states that are using a menu planning system under “any reasonable approach” where FNS will not have the standards. In this case, it would be sufficient for the state to submit the standards to USDA annually along with, but separate from, the nutrient analysis results. It seems unnecessary and potentially error prone to require the states to resubmit the standards with each analysis. One possibility would be for USDA’s program to pre-fill the standards into the worksheet. Since NutriKids can automatically assign the standards given the age/grade range, it should not be too difficult to allow this to happen in other software.

Chapter Three

CURRENT REVIEW PROCEDURES

USDA desires to understand each state's ability to report the required information and to develop a system that would impose the minimal burden on the states. To do so, it is crucial that USDA understand the systems that states are currently using to perform their SMI reviews and, in particular, the flow of the required information from the states to USDA from the time the nutritional analysis is completed. This chapter includes this information for the seven volunteer states. The chapter first describes the general SMI review process and then summarizes the process in each of the seven states.

OVERVIEW OF SMI REVIEW PROCESS IN THE SEVEN STATES

When we interviewed individuals within the states about the process they use to conduct SMI reviews, we discovered some similarities. Figure 3.1 shows the basic steps for completing an SMI review across the seven states. The solid arrows indicate steps that every state follows. The dashed lines indicate steps that may occur in some states or for some analyses, but that are not always present. This figure does not include every step that every state takes in completing SMI reviews. Instead, it gives a basic outline of the steps that most states use.

In every state, the SFA provides specific background information for the review week. If the SFA is not using a nutrient-based menu planning system, this information includes menus, recipes, and production records to the state or a contractor. For SFAs using nutrient-based plans, they also provide the nutrient analysis for review. In

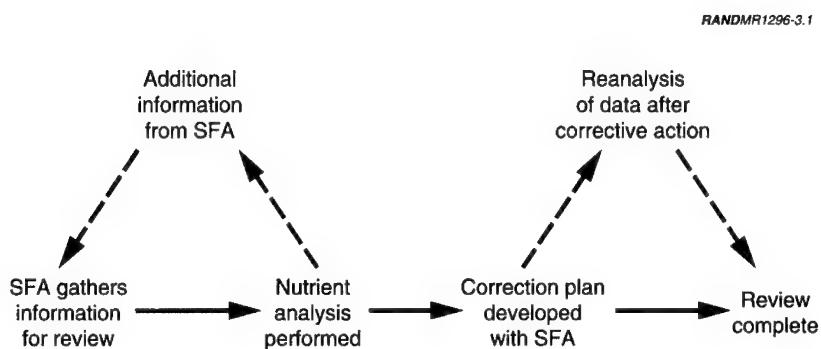


Figure 3.1—Basic Steps in Completing the SMI Review Across States

some cases, this information is sent prior to the SMI site visit, and in other cases it is collected during the site visit; but the information is always required from the SFA. Sometimes the SFA does not have everything available prior to the visit, and it requires several weeks or even months after the visit to collect all the necessary information. Once the background information is collected, it is sent to the person responsible for completing the nutrient analysis. In some cases, the same person who collected the information performs the nutrient analysis. In other cases, the information is sent to another person—either within the state agency or at an outside contractor—for the analysis. When the analysis is complete, a correction plan is developed with the SFA, and the review is closed.

If an SFA is using a nutrient-based menu planning system, often the state authority merely collects the output of the analysis program. The analysis is usually not redone by the state. Instead, the reviewer examines the completed analysis sent by the SFA.

HOW THE PROCESS WORKS WITHIN EACH OF THE SEVEN STATES

Each state operates slightly differently, and, even within a given state, reviewers may alter this process somewhat. To understand that variation across states, we present case studies for seven states based on our site visits. These case studies consider the following issues: who collects background information, who performs analyses, when

analyses are sent to the state, how and where information on analyses is kept, and how difficult it would be to send information to FNS.

California

In California, reviewers collect hard copies of the menus, recipes, and other information from the SFAs during the site visit. The reviewers are located throughout the state, and all work for the California Department of Education. In most cases, the reviewers send the information to the Department of Education, Nutrition Standards Unit, where data entry staff enter it into the NutriKids program, but reviewers will occasionally do the data entry and perform the nutrient analyses themselves. Even when a reviewer does the analysis, it is reviewed again by the Nutrition Standards Unit. If the data entry staff find any information missing, they may consult with the reviewers or follow up with the SFA themselves.

Analyses that are completed at the state office are not revised. Analyses done by the reviewers may be revised if the Nutrition Standards Unit personnel find problems, but this happens only rarely. If an SFA uses NuMenus or Assisted NuMenus, the reviewers will examine the analysis, but they will not redo it. Once the analyses are finished, they are kept at the state office both in hard copy and in electronic format. California has started logging the results of the nutrient analyses into a Microsoft Access database with the 1998-1999 reviews. Given that the state already has a database set up and has agreed to revise the database to include whichever data elements FNS requires, it would be a relatively easy task for California to report nutrient analysis data.

Once an analysis is completed, an improvement plan is developed in conjunction with the SFA. Even if the SFA meets all the nutritional requirements, there is usually some sort of improvement plan. When the improvement plan is accepted by the SFA, the review is considered closed.

There are 1,496 SFAs in the state of California. As of June 1999, 206 (14 percent) SMI reviews had been completed and recorded at the state office. However, the actual number of reviews completed in June 1999 was 307 (21 percent), but some reviews had not yet been recorded when we talked to the California staff. The SFAs in Califor-

nia are using a variety of menu planning systems. About 20 percent of SFAs use nutrient-based plans, more than 35 percent use enhanced food-based plans, 20 percent use traditional food-based plans, and 25 percent use "any reasonable approach." Although USDA no longer requires that analyses be weighted, some California analyses continue to be weighted.

Georgia

In Georgia, state employees, called consultants, perform the SMI reviews with the help of secretaries. (The title *consultant* is used in Georgia, Nebraska, and Wisconsin for reviewers who work for the State Agency). These employees work for the Georgia Department of Education, but they have offices throughout the state to ease the performance of the site visits. In the future, the state would like to hire a subcontractor to help with nutrient analysis. According to the state staff, there is not currently budget to do so. The consultants and secretaries are responsible for collecting all raw information from the SFAs during the site visits. The secretaries enter the data into NutriKids, and the consultants do the analyses.

Once the analysis is completed, an improvement plan is formulated and the SFA changes its menus accordingly. The analysis is then redone based on these changes. About 50 percent of SFAs require a second analysis and second site visit. Once the improvement plan is implemented and the analysis is redone, the review is complete.

Georgia does not currently have any state database that records the results of the nutrient analyses, and funds are not available to create such a database. Hard copies of the analyses are kept at the state offices and are not maintained in the field offices. No soft (computer readable) copies of analyses are currently kept on file. Currently, it would be a fair amount of work for Georgia to devise a method for reporting data to FNS. They do not have any system in place to enter the data from the nutrient analyses into a database of any sort. Everything would have to be keypunched from the hard copies unless there was a way to save the information directly from NutriKids.

The Georgia Department of Education is responsible only for SMI reviews in public SFAs, so it must review 180 SFAs. As of July 1999, when we talked to the state staff, they had completed reviews on 78

SFAs (43 percent). SFAs in Georgia are almost all (95 percent) using traditional food-based menu plans. Georgia requires analyses to be weighted by type of entrée served.

Nebraska

Unlike the other six states, Nebraska performs the nutrient analysis prior to the site visit of the SFA. Several months before the visit, a consultant who works for the State Agency calls the SFA and requests all the necessary information. If the SFA uses a food-based system, it sends the menus, recipes, etc., to an independent contractor to do the analysis and the contractor forwards the completed review to the consultant. If the SFA uses a nutrient-based system, it sends the analysis itself to the consultant for review.

The consultant then brings the completed nutrient analysis to the site visit. Since the nutrient analysis is already complete, at the visit the consultant can then give comments to the SFA and ask for an improvement plan.

Once the state reviews the information from the analysis, either by the contractor or directly from the SFA, it is logged into a Microsoft Access database. Hard copies of the analyses are also kept at the state office. The electronic copies of the analyses are not kept past the end of the school year in which they were done. Since the state already has a Microsoft Access database that could easily be modified to fit the needs of FNS, Nebraska should not have a problem supplying the necessary data in the future, assuming it can be done directly from the database.

Nebraska has 506 SFAs in the state and had completed reviews on 103 (20 percent) as of July 1999. SFAs in Nebraska are mostly using food-based menu planning systems, with about 80 percent using enhanced food-based and 16 percent using traditional food-based. The rest are using nutrient-based systems. Nebraska requires analyses to be weighted by type of entrée.

New Jersey

In New Jersey, field staff, who work for the New Jersey Department of Agriculture, do all site visits. They hand-carry information from the

SFA back to the state office and then send it to an outside contractor (located in Ohio) for the nutrient analysis. The contractor sends the completed analyses back to the state office, and the reviewer has an exit conference with the SFA to discuss improvement plans. The reviewer then sends a letter to the district outlining an improvement plan. Finally, once the improvement plan is implemented, the SFA receives a closeout letter signaling that the review is complete.

New Jersey does not currently have any method for aggregating the nutrient analyses. State officials stated that they preferred to wait and see what information FNS requires them to submit before developing a system to use for aggregation. They would like FNS to provide a protocol for a database before they create anything. All hard copies of analyses are kept at the state office. Currently, no electronic information is kept on reviews, so New Jersey would also need to devise a system to send the data to FNS electronically. State staff are willing to do what FNS needs but are waiting for guidance from FNS.

New Jersey has 716 SFAs and had completed reviews on 100 (14 percent) as of August 1999. About 90 percent of SFAs in New Jersey are using enhanced food-based menu planning systems. The other 10 percent are using either traditional food-based or nutrient-based systems. Although no longer required by federal regulations, the state of New Jersey requires nutrient analyses to be weighted by type of entrée served.

New York

In New York, individual reviewers who work for the New York Department of Education collect the necessary information from the SFAs during the site visits using a statewide protocol. The level of technical assistance varies, however, based on the review and the SFA's need. If an SFA is using a food-based system, the reviewer performs the nutrient analysis. If the SFA is using a nutrient-based system, the SFA is responsible for its own nutrient analysis and the reviewer will assess that analysis as well as the SFA's competence in doing the analysis. After the analysis is reviewed, a correction plan is developed with the SFA and a hard copy of the final review is filed at the State Agency.

New York is in the process of creating a Microsoft Access database to aggregate the nutrient analysis information. However, making the database operational is not a priority. State officials said that they prefer to wait until FNS issues its requirements. In the meantime, the analyses are kept in hard copy at the state office and a summary of each analysis is kept in electronic format. However, this summary does not include all the information that FNS will likely require on SMI reviews. Since New York has already started creating a database, it should not be a difficult task to modify it to contain all the necessary data elements and then export the data for FNS.

New York has 1,275 SFAs and had completed between 93 (7 percent) and 113 (9 percent) SMI reviews as of August 1999. About 50 percent of SFAs in New York are using nutrient-based analyses, in part because the state staff "put a lot of effort" into training school personnel on how to perform nutrient analyses correctly. The other 50 percent are fairly evenly split between enhanced and traditional food-based systems.¹ New York does require analyses to be weighted.

Texas

Texas has a different system for completing SMI reviews than the other six states. Unlike the other state agencies, the Texas Education Agency (TEA) is not heavily involved in SMI reviews. Instead, TEA has divided Texas among 20 Educational Service Centers (ESCs), which are responsible for SMI reviews as well as technical assistance for disabled students, multicultural studies, and the Public Education Information Management Systems, which collects student demographic and academic performance, personnel, financial, and organizational information. Each ESC has a Child Nutrition Office that is responsible for the SMI reviews. Other personnel within the ESC perform the other services mentioned. The ESCs are independent entities that perform reviews and provide technical assistance to SFAs. Therefore, it is difficult to construct a comprehensive descrip-

¹These were the numbers that we were given at our site visit in August 1999. New York has since revised these numbers: 128 reviews (10 percent) completed as of August 1999. About 40 percent of their SFAs are using nutrient-based analyses. The enhanced food-based option was selected by 37 percent of the SFAs, and the traditional plan was selected by 23 percent of the SFAs. The numbers in Table 3.1 also reflect what we heard in August 1999 and would be updated by this information.

tion of how the SMI review process works in Texas because each ESC is autonomous and has its own method for performing reviews. TEA does not currently receive any nutrient analysis information from the ESCs, and therefore no aggregate information exists at the state level.

The ESC staff do not work for the state but are employees of the ESC, which is an independent entity. We spoke to the ESC staff in Region XIII, which includes the area around Austin. In that region, the ESC staff perform all site visits and the nutrient analysis. The standard process is for the ESC staff to send an initial letter to the SFA listing the information it will need for the review. Then, a second letter is sent informing the SFA of the dates for the review week and the date of the site visit. Even in cases where an SFA is using a nutrient-based system, ESC staff will redo the nutrient analysis rather than rely on the SFA's analysis, thus doing nutrient analyses on every SFA that they visit.

Because most districts are not ready to complete a final analysis of the nutrients in their meals, the analyses often have to be done several times before they are correct. Therefore, officials in Texas referred to the analysis as a "living document." During the 1998–1999 school year, almost all analyses in Region XIII were revised after they were initially done. ESC staff reported that this was because it was the first year they did SMI reviews and SFAs were still getting used to the process.

A hard copy of the analysis for each SFA is kept by the ESC. The SFAs themselves are also required to keep a copy of the analysis and the improvement plan. General information about all analyses performed is sent to the state annually. However, no SFA-level information is sent to the state. Of all the states we spoke to, Texas will probably have the most difficult time supplying FNS with nutrient analysis data. Since the state staff would want to see the data before sending it on, they would first need to collect all the analyses from the 20 ESCs at TEA and then input the data for FNS or have the ESCs input the data and forward it to TEA. In either case, the process would require several steps that TEA is not currently taking.

The TEA and the ESCs in Texas are responsible only for public SFAs. The 20 ESCs must do SMI reviews on 1,100 public SFAs. Because no information on individual reviews is sent to the state, it is not possi-

ble to say how many reviews have been done to date without talking to each ESC individually (which we did not do). About 50 percent of SFAs in Texas are using traditional food-based menu planning systems. Of the others, about 30 percent use enhanced food-based and about 20 percent use nutrient-based systems. Texas does not require analyses to be weighted.

Wisconsin

In Wisconsin, a consultant collects all the menus, recipes, and other supporting documents from the SFA during the site visit, unless these materials were sent prior to the visit. More than half the schools send the packets ahead of time. As in Georgia and Nebraska, the state employees are called consultants. Either the consultant performing the site visit or a central consultant at the state office then completes the nutrient analysis. If materials are sent prior to the visit, then the analysis can be completed in time to discuss it at the site visit. Occasionally, analyses are corrected if the school is using a nutrient-based system and had a problem doing the analysis itself or if the school is using a food-based system and submitted erroneous information for analysis. When an analysis is corrected under these circumstances the updated and most accurate analysis is recorded in the state spreadsheet. Once the analysis is finished, the consultant works with the SFA to form a correction plan. Once the consultant has determined that the district has begun the correction plan, a closure letter is sent to the SFA.

Wisconsin is currently using a Microsoft Excel spreadsheet to enter the nutrient analysis information for monitoring and analysis at the state level. Hard copies of the analyses are also kept at the state office. Assuming FNS would accept data in various formats, it should be a simple matter for Wisconsin to take the data in the spreadsheet and modify it for FNS.

Wisconsin has 900 SFAs and had completed reviews on 312 (35 percent) as of June 1999. Nearly 70 percent of SFAs in Wisconsin use enhanced food-based systems. Almost 30 percent use traditional food-based systems, and less than 5 percent use nutrient-based systems. Wisconsin requires that analyses be weighted by all menu items.

SUMMARY OF SMI REVIEW INFORMATION

In this section we present the information on all seven states together. Table 3.1 lists the status of reviews (June–August 1999) in terms of the SFAs in each state as of the time of the interview. As we mentioned before, the agencies in Georgia and Texas are responsible only for public SFAs; therefore, the number of SFAs listed for those states represents only public SFAs. The agencies in the other states are responsible for both public and private SFAs.

Table 3.1 suggests that the states are at varying points in their SMI review efforts. Georgia and Wisconsin have completed more than a third of the required reviews. New Jersey and New York have completed less than a sixth.

Interpretation of the percent of reviews completed is complicated by the nature of the review process. Not all SMI reviews that have been performed had been logged into state systems at the time of the interviews. Therefore, some states had to estimate the number of reviews that were done in the 1998–1999 school year. In the table below, the numbers represent the actual completed reviews. Numbers in parentheses represent the estimated number and percent of reviews that will be completed once all reviews for that school year are logged in and exit conferences are finished.

Table 3.1
Summary of Status of SMI Reviews in the Seven States

State	Number of SFAs	Number of SMI Reviews Completed as of Summer 1999	Percentage of SMI Reviews Completed as of Summer 1999
California	1,496	206 (307)	14 (21)
Georgia	180	78	43
Nebraska	506	103	20
New Jersey	716	100	14
New York	1,275	93 (113)	7 (9)
Texas	1,100	188	17
Wisconsin	900	312	35

NOTES: Numbers in parentheses indicate the estimated number or percentage of reviews completed once they are all logged in; New York figures are the revised numbers sent after our visit.

Table 3.2 summarizes the information collected on how the SMI reviews were conducted within the seven states. In some states the reviewer does the nutrient analysis. In other states, the nutrient analysis is done by someone else—a member of the central office or an outside contractor. Some states use a mixture of the two approaches. The “Weighted Analysis” column indicates whether a state is using that method.

Most of the states received the data from each nutrient analysis in the State Agency office. The column entitled “State Has Data” in Table 3.2 shows whether the state office receives the data and whether they have compiled it into any type of central database.

All State Agency personnel or State Agency contractors in these seven states use NutriKids software. However, SFAs and others, such as food service management companies that perform their own computer analyses, may use different software. Therefore, not all nutrient analyses in each state are necessarily done on NutriKids.

Table 3.3 shows the reviewers’ employer and location. In every state except Texas, the reviewers work directly for the State Agency, although they are not always based at the central office.

In this table, “State—Centralized” refers to reviewers who work out of the main office of the State Agency. “State—Distributed” refers to reviewers who work for the State Agency but are located in other

Table 3.2
Summary of How SMI Reviews Were Performed in the Seven States

State	Who Does Analysis		Weighted Analysis?	State Has Data?*	Software Used
	Reviewer	Other			
California	X	X	Some	Y, DB	NutriKids
Georgia	X	X	Y	Y, NDB	NutriKids
Nebraska		X	Y	Y, DB	NutriKids
New Jersey		X	Y	Y, NDB	NutriKids
New York	X	X	Y	Y, DB	NutriKids
Texas	X		N	N	NutriKids
Wisconsin	X	X	Y	Y, DB	NutriKids

*DB = database or spreadsheet; NDB = no database or spreadsheet

parts of the state away from the central office. “Contract—Distributed” refers to reviewers who do not work for the State Agency and are spread out around the state.

Table 3.4 shows the summary of menu planning systems that districts use in each of the seven states. In five of the seven states, more than 80 percent of SFAs are using food-based systems, either “Traditional” or “Enhanced.” In three of the seven states, more than 15 percent of SFAs are using “Nutrient Analysis.” In New York, nearly half of the SFAs are using “Nutrient Analysis.” In California and Texas, nearly one in five SFAs are using “Nutrient Analysis.”

Table 3.3
Summary of SMI Reviewers’ Employer and Location in the Seven States

State	State—Centralized	State—Distributed	Contract—Distributed
California	X	X	
Georgia	X	X	
Nebraska	X		
New Jersey	X		
New York	X	X	X
Texas			X
Wisconsin	X		

Table 3.4
Summary of Menu Planning Systems Used for SMI Reviews in the Seven States

State	Menu Planning System Used (Rough Estimates of Percent of Districts)			
	Nutrient Analysis	Enhanced Food-Based	Traditional Food-Based	Other
California	18	37	20	25
Georgia	?	?	95	0
Nebraska	4	80	16	0
New Jersey	3	91	6	0
New York	48	28	23	0
Texas	17	30	53	0
Wisconsin	3	68	28	0

NOTE: ? = State was unable to provide these numbers.

Chapter Four

HOW DATA ELEMENTS COULD BE COLLECTED

Having considered what should be reported and current state review procedures, in this chapter we turn to the core of this report: How states could most easily report the results of their review efforts to USDA. We begin by asking two questions: Who should do the reporting? When in the review process should the report be sent to USDA? We then consider the technical details of how the reporting should be done. On the state side, we consider file formats and methods for forwarding the data to USDA. On the USDA side, we consider how to store and analyze the data. Throughout, we give careful consideration to minimizing the burden on the states.

WHO SHOULD REPORT WHEN?

Who should report the state's review information and when in the review process should that person do so? To consider the broadest possible range of approaches to state reporting, we want to begin with the point at which there exists a nutrient analysis that could be provided to USDA. To do that, we need to consider when a review is complete.

As discussed in the previous chapter, state procedures vary. For the purposes of this discussion, it is enough to note that the materials from the review are collected by someone and entered into the nutrient analysis software (sometimes the person making the on-site visit, sometimes a state employee in a central office, sometimes a private nutritionist). The results of the nutrient analysis are available essentially immediately after all of the information (i.e., menus and nutritional content of ingredients) is entered—a few seconds to do the

analysis, a few more seconds to save or print the results. In practice, it often takes several cycles of data collection (by field staff), data entry, and review (by a senior staff person) to collect all of the necessary information (menus, specific products used, nutritional content of products) and to clarify apparently erroneous information. For example, the data entry person may begin input and realize that a menu is missing or a food item's nutrient content is not included. In these cases, the state staff contacts the SFA again for this information before data input can be completed. For the discussion here, that is an unimportant detail.

Similarly, under some circumstances, some states revise their reviews. For example, in Georgia, about half of the nutrient analyses are redone after an improvement plan is implemented. In most other states, analyses are revised only if an error is found, either with data entry or with the materials that the SFAs provided.

To monitor the content of meals actually being served, USDA would want the results of the final reviews. Most states that enter the nutrient analysis data into a database or spreadsheet use the initial review. Thus, it should be possible to report the results of the review immediately after completion of the nutrient analysis. It should not be necessary to wait for the completion of any revised review, nor for the development of the improvement plan, nor for the official closing of the review. Since only the initial analysis is considered part of an SMI review according to FNS, states should only report information from this analysis to FNS. Only in cases where an error was found with inputting the information in the analysis software would a "revised" analysis be appropriate. In states such as Georgia where analyses are revised based on the implementation of improvement plans, USDA would want the results of the pre-revision nutrient analysis. Therefore, FNS should make clear in directions to the states that the original analysis is the appropriate one to report, even if this is not when the state considers the review completed.

To allow for the broadest range of options, we should consider having any of the people who have access to the nutrient analysis after its completion forward the review to USDA. Depending on the state, the list of such people might include the person who inputs the data and performs the nutrient analysis (perhaps the field staff person, perhaps a state employee in a central office, perhaps a contractor),

the person who reviews the computer output, or the clerk who files the analysis (though the clerk will often not get the file until the review is complete, sometimes well after the nutrient analysis is complete).

In practice, the consideration of such options was uniformly and vehemently rejected by every state we visited. Senior state officials all said that they were responsible for the SMI reviews. If the results of the nutrient analysis were to be reported to USDA, they would want to review the analysis or have a designated person in their office do so before it was forwarded to USDA.

This state reaction has important and unfortunate consequences for USDA. USDA's stated goal is to have states report data with minimal additional effort or disruption of their current routine. At least in Texas, these two goals appear to be mutually exclusive. The Texas Education Agency does not currently collect the results of reviews. Instead, the individual reviews are held by the Educational Service Centers (ESCs). Nevertheless, even Texas officials stated that they would not be willing to forward the results of nutrient analyses to USDA without reviewing them centrally. Thus, any USDA reporting requirement will force Texas to collect and review the nutrient analyses centrally.

While in principle we could consider several alternatives as to when in the process the report should be sent to USDA and by whom, in practice, it seems clear that reporting will be done by central office staff. Furthermore, this line of reasoning strongly suggests that the reporting will be done, not when the nutrient analysis is completed, but when the review (including the completion of the improvement plan) is completed. Furthermore, it will sometimes be true that by the time the review is completed, there will be not only the initial nutrient analysis but also a revised nutrient analysis. USDA will need to give clear instructions as to which review it wants. We recommend that USDA explicitly request the initial review.

FILE FORMATS AND STATE DATABASES

USDA's projected uses of the data require that it receive not aggregated data (as is currently true for Coordinated Review Efforts (CREs), but instead information on each review. Happily, this need

appears to be consistent with state desires. States have complained that they have little use for the aggregate CRE data and that aggregating the results is therefore an unnecessary burden.

Having tentatively concluded that reviews will be forwarded to USDA by some member of the state's central office staff, we turn to the file format in which the data should be forwarded to USDA and the closely related issue of state databases. There appear to be two broad approaches to these issues:

- States could create a database for their own use. At some interval (presumably annually), the states could forward the content of the database to USDA.
- Alternatively, states could forward the information to USDA review by review. In this case, states might find it useful to access USDA's database.

We consider each of these approaches and mixtures of the two.

State Databases

Some states (California, Nebraska, New York, and Wisconsin) are already working on their own local databases or spreadsheets. They record the results of each review into the database as it is completed. They then use the database locally to monitor the status of reviews and the results of the reviews. We learned of databases being constructed in Microsoft Excel (spreadsheet), Microsoft Access (low-end database), and Oracle (high-end database).¹

Several other states indicated that they expected to move to a local database in the intermediate term. One state (New York) already had a local database project underway. Another state (New Jersey) was deferring its local database project until it received clearer guidance from USDA on what should be collected. Some states (New York, New Jersey, Georgia) indicated that they would welcome (and per-

¹Wisconsin uses an Excel spreadsheet; California, Nebraska, and New York are in various phases of developing an Access database; New York uses Oracle for some of its database needs, though it has not developed a full database for SMI.

haps expect) USDA-provided software for the construction of a local database.²

The existence of a local database is useful for USDA because the data already exists in computerized form and it should be relatively easy for the state to forward the review information to USDA. The state would simply forward the computer file to USDA (perhaps with some documentation as to the meaning of fields). Some simple programming might be needed to read the state file into USDA's national database, but doing so would be relatively straightforward. Standard (and inexpensive) software products (e.g., DBMS/Copy, Stat/Transfer³) will perform the file format translations (e.g., from Excel or Access into Oracle or SAS). Some software packages will do the file format translations internally (e.g., SAS will read Excel and SQL databases such as Oracle).

The file format translations, however, are only the start of the task. Once the files are in the final file format, there is then the issue of renaming variables and recoding values so that the state data can be merged into the USDA database to yield analyzable data. For this task, the effort required by USDA to read the data into its database will be approximately proportional to the number of different database systems the states use. As long as the file formats do not change much from year to year, 50 states is a feasible number of formats to process. A programmer of moderate skill could probably do most formats in an hour or two.

Clearly, however, it would be much simpler for USDA to provide the states with a program that they may choose to use. Several states said they preferred that USDA provide the program, and if it did so they would use it. Given the goal to minimize the work for both the states and USDA, supplying a sample program to the states is attractive.

We have created a sample local database in Microsoft Access with data input screens and rudimentary data input checks. To make it

²A sample local database is available at <http://www.rand.org/organization/drdr/labor/foodnupolicy.html>.

³See <http://www.conceptual.com/dbmscopy.htm> or <http://www.stattransfer.com/> for more information.

fully functional, it probably requires some simple documentation (under ten pages), some more data input checks, some simple reporting functions, and a simple file export function (see below). The time required to add these functions is probably less than a month.

Some states will not use a USDA database because they have already developed a database with which they are happy. For some states, this database is integrated with other parts of their system (e.g., it also holds financial data or CRE data).

For those states, USDA will need to make a policy choice. Someone will need to do the file translations. On whom does USDA want to put the cost of making the data compatible? USDA could impose those costs on the states. In that case, USDA could publish specifications (for the names of variables and the coding scheme) and then require the states to provide data according to the specification. Presumably, the USDA-provided program would automatically satisfy the specifications, which would be another incentive for the states to use the USDA program. This approach seems inconsistent with the stated USDA desire to minimize the cost to the states.

Alternatively, USDA could simply require the states to deliver some computer file (see below for details). USDA would then have to translate the files itself. If USDA provides a program that the states can use at their option, it seems likely that many (perhaps most) states will do so, thus the cost to USDA will not be too large. Given USDA's stated desire to minimize the costs to the states, it seems preferable for USDA to offer to take the data in any well-defined and documented file format.

No State Database

Not all states currently have a database, and it is not clear that it is necessary for each state to maintain a database. In the Internet era, USDA could maintain the database and states could access it as needed to generate reports.

Under this model, states would report the results of individual nutrient analyses to USDA as each review is completed. A natural way to do so would be over the Internet. USDA would provide a web site with a data input form, and the clerk in the state central office would

access the web site and input the data. We provide a sample Microsoft Front Page program for the data input at the RAND web site,⁴ and we discuss data input and transmission in the next section.

Ideally, the nutrient analysis software (e.g., NutriKids) would generate a file with all the required information. As we noted earlier, current software provides some, but not all, of the required information. In that case, the clerk could simply forward the output from the computer program.

TRANSMITTING THE DATA

Even with agreement as to file formats, there remains the question of how the data should actually get to USDA. Many options are possible. At the simplest level, the states could send a computer disk with the data to USDA through the mail. The files will be quite small, so a 3.5-inch computer disk is feasible and inexpensive, but disks are notorious for being corrupted easily. There is a danger of data being sent in a timely manner but FNS not being able to use them because of corrupt disks.

Paper reports are in principle possible but seem unnecessarily cumbersome. Using paper reports would require USDA to rekey the information, which is inefficient.

⁴This program is not a complete prototype but demonstrates the capability for remote data entry. The current program, however, does not allow editing of already inputted data. That step will be required of any production system. Errors in data entry are not uncommon and they would need to be corrected (presumably by the state).

Some subtle data safeguarding issues are raised by doing such data editing over the Internet. Any Internet system would require some form of security (e.g., password protections to prevent unauthorized access to or modification of the data). Only USDA and the reporting state should be able to edit information for a state—not other states and not outsiders.

Similarly, USDA would need to develop policies about who could analyze which parts of the data. Clearly, USDA would want to be able to analyze the data. If USDA is maintaining a database of state data, it seems reasonable that the states should be able to access, analyze, and download their own data. USDA would need to decide if the filings were to be considered public information such that other states or nongovernmental organizations would be allowed to access and analyze (but not modify) the data. The federal Freedom of Information Act may apply.

All states reported that they had (or would soon have) e-mail and Internet access for their field staff and for their central office. E-mail technology for the transfer of computer files is today quite robust. If states are going to be required to provide USDA with files, e-mail is likely to be the lowest cost and easiest option for both USDA and the states.

On the USDA side, the standard approach to e-mail submission is the creation of a dummy e-mail account (perhaps SMI-input@usda.gov). States would send their submissions to this account. Whomever at USDA is currently responsible for the data would be given authority to access the e-mail messages. Such a dedicated account would get the state submissions out of the stream of other e-mail coming to the designated USDA staffer. This approach also allows USDA to change the dedicated staffer without informing or inconveniencing the states.

Similarly, if the states provide data review-by-review, input based on Internet forms seems most attractive. All states we talked to have Internet access, and the software could be made easy to use. Input should be completable in well under fifteen minutes (perhaps five minutes). States would submit their data using an Internet form that looks similar to the Access screen shot in Chapter 2. RAND's Survey Research Group has used such Internet data input for some surveys of professionals. Many high-tech marketing firms conduct market surveys in this way.⁵ All e-commerce sites have a similar data input operation (e.g., Amazon.com, eBay.com, and eToys.com).

One option for setting up an Internet form is to create the web site (an HTML document) with Microsoft Access in the background. This option allows USDA to send the data directly into a Microsoft Access database as they are entered. However, this has some limitations since Access is not really capable of handling multiple users at the same time. Another option is to use an HTML document with an application that can handle multiple users, such as Oracle Personal Server, Microsoft SQL Server, or Visual InterDev. USDA would just need to have the appropriate program loaded onto a server. In all of

⁵See "The Survey Says..." in PC Magazine, May 4, 1998, for more information on web-based surveys and using the data in Microsoft Access.

these cases, the web form would look just like a regular web page to the person doing the data entry.

The only problem that a web-based form might pose is the currency of the states' web browsers. If FNS can be sure that all the states are using something reasonably current, then web site development will be relatively straightforward. If many states are using outdated browsers, development might be more complicated. Depending on how competent the developer is (e.g., how well that person understands the limitations of older or obscure web browsers), this could have an impact on the users. However, this problem is relatively small since many updated web browsers are available over the Internet for free. FNS would merely need to instruct the states to obtain a current web browser.

Such Internet input guarantees consistent data and minimizes the cost to USDA in terms of tracking files submitted and reformatting information. Furthermore, the system could easily be constructed such that a state could download data to a local (i.e., in the home state) computer for further analysis (e.g., by Microsoft Excel or Microsoft Access).

PUTTING IT ALL TOGETHER

USDA's stated goal is to collect the data at minimal cost to the states. Therefore, it seems appropriate for USDA to accept the data in any reasonable format that the states are willing to provide. Therefore, we recommend that USDA accept data in all of the following forms:

1. *USDA File Formats:* USDA develops and offers to the states a simple program allowing the creation and analysis of a local state database. The RAND-provided Microsoft Access program is a start toward such a program. States then forward the results annually, using the CRE deadlines, to a dedicated e-mail account at USDA.⁶

⁶To encourage states to use USDA's program (and thus to minimize USDA's programming costs), USDA might offer to pay for programming time to read existing state databases (i.e., the information in the database) into the USDA program.

2. *Other File Formats:* USDA accepts from the states any computer file they wish to submit. The only requirements are that the file contain all of the required data elements and that the state document the data sufficiently well that USDA can read the data into its database. USDA would pay a programmer to read the state files into its database. Given that most states would probably not choose this option, the required time would probably be only a week or two.⁷ Again, the file would be delivered annually by e-mail to a dedicated e-mail account.⁸
3. *Internet Input:* USDA develops an Internet-based data input program through which the states could provide the results of nutrient analyses on a review-by-review basis. The Internet input option is the least clear: Developing the software will be more expensive than the other options, and it is not clear whether the states would use the option.

CUSTOMIZING DATABASES FOR THE STATES

One issue that must be considered when deciding the reporting system is how the states will want to use these data for their own purposes. Some states already have a system in place for reviewing their SMI data. Others do not have anything in place and do not plan to develop a system until they are required to do so. However, if states are required to report data to FNS, they will undoubtedly want to have use of that data within the state as well. Therefore, this raises the issue of ensuring that the states are able to customize the database for their own use.

If states already have their own system and they will be sending their data to FNS in their current application (i.e., Microsoft Access or Ex-

⁷In the first year, the cost of these two options—USDA program development for the states to use or state data files on receipt—would be similar. Thereafter, the first option is likely to be cheaper. If states convert to the USDA program, then it is easy for USDA to change the submission rules (e.g., to add new fields, to change the codes, to improve the data validation). However, if the states customize USDA's program, USDA revisions to its program may require additional work by the states to redo their customizations. Because of this and to minimize the need for customization, USDA should poll the states about additional program features desired.

⁸So that USDA would not have to do conversions more than once a year, the information should be sent annually.

cel, Oracle), then they can easily customize the system to include other data elements for their internal analyses. They would then just need to send the required data elements to FNS.

If states were to use a protocol given to them by FNS (e.g., the Access database RAND has designed), states could customize the system in much the same way they would their own system. Again, they would just need to send the appropriate data elements to FNS.

In the case of a web-based system, two issues pose difficulty for customization. The first concerns getting their own data without others also having access to it. Allowing states to query any data in a web-based system is not difficult, but allowing states to access only their own data is probably more desirable but requires some programming. The second issue is actual customization. If states were able to download a plain text file from a web-based system, they could potentially merge it with the other data elements that they want to add. However, this requires an identifier for the review to have something on which to merge. It is clear that the web-based system would be the most difficult for states to customize. However, some states that do not currently have systems in place may wish to use this since they may not see a need for additional analyses using other data elements. A web-based system would save them having to develop or maintain anything new.

MANAGING THE DATABASE AT USDA

We conclude with some thoughts about the database at USDA. There are about 20,000 SFAs in the country. With a five-year review cycle and some SFAs using multiple menu planning systems, USDA would expect on the order of 4,000 new records per year. Each record would have between 20 and 30 data elements.

This is a moderate-sized database that can be run on the standard desktop personal computer purchased today (late 1999).⁹ Clearly, e-mail and web access would be needed. For software, USDA could

⁹One example is Dell's low-level Dimension L433CD with a 433 MHz Celeron processor, 64MB RAM, and 4.3GB hard disk. List price is \$1,299 as of November 1999.

use Microsoft Access, an Oracle database, or a more conventional statistical package such as SAS.

The tabulations required by USDA are straightforward and could be precoded. In the language of SAS, they are “frequencies” with “subsetting if” and “by” statements. The systems should probably include the possibility of ad hoc queries. QBE (Query by Example) is the easiest way to specify such queries. An analyst with rudimentary experience in statistical analysis (e.g., those required to complete a masters program in public policy) should be able to program the required queries without major assistance.

Chapter Five

DISCUSSION OF THE CONTENT OF SPECIFIC MEALS

The discussion of the previous four chapters has considered the technical question of what information USDA should collect about SFA-level SMI reviews and how that information should be forwarded to USDA. In this chapter, we briefly consider the broader issues of how the SMI effort in general (especially, state reporting to USDA) advances the statutory goals of the NSLP (in particular, the compliance of NSLP meals with the DGA).

We begin with a discussion of two positive effects of the current review procedures: First, the experience of preparing for a review itself raises consciousness of nutritional issues; and second, as intended, the results of the review lead to improvements in the nutritional content of meals.

We then consider three specific concerns about the quality of the data that are collected. Combined with the required effort, these concerns lead some state officials to question the value of applying limited staff to the SMI effort. For example, New York state staff commented that “too much of [our] resources are directed toward artificial data gathering, rather than feeding kids.”

In particular, three considerations suggest that the present SMI review program may not be ideal for achieving the goals set out in the USDA Strategic Plan—especially that of ensuring that school meals are consistent with the Dietary Guidelines for Americans and the Recommended Daily Allowances. The first issue concerns the quality of the review information for the meals reviewed. The second issue concerns the representativeness of the meals being reviewed at the SFA level (i.e., how useful is the information for parents in a given

SFA about the meals being served by their SFA). The third issue concerns the representativeness of meals being reviewed at the state level (i.e., how useful would some average of information about all meals across groups of schools be to USDA). We discuss each of these considerations and suggest additional steps the USDA could take to address them.

PREPARING FOR THE REVIEW

Our interviews in the states emphasized that preparing for the review itself often generates positive spillovers. Several states ran seminars, attended by representatives from large numbers of SFAs, to help them prepare for their SMI reviews. The impending SMI reviews forced SFA staff to focus, in general, on nutritional issues and, in particular, on the DGA, and considerable nutritional education of SFA staff appears to have occurred.

Furthermore, preparing for the reviews itself probably improved procedures and consciousness of nutritional issues. In some SFAs, the SMI requirement induced a movement to nutrient-based menu planning systems. Even in the majority of SFAs that have not made the move to nutrient-based menu planning systems, preparing for the SMI reviews forced changes in procedures. Detailed written menus needed to be developed. Detailed nutritional information needed to be obtained from suppliers.

These efforts themselves are likely to result in improved nutritional content of meals served. Proper menus and nutritional information for ingredients are prerequisites for nutritional improvement. The increased attention to the nutritional content of meals is itself likely to have positive effects on the nutritional content of meals served in the future.

RESULTS OF THE REVIEW

The primary mechanism through which reviews are likely to affect future meals served is through the results of the reviews. First, state officials reported that both they and SFA officials were often surprised by the results of the reviews. Formal nutrient analysis often yielded results very different than those expected by trained nutri-

tionists conducting informal reviews of menus and procedures. State officials reported that on seeing review results, SFA officials often resolved to improve the nutritional content of their meals.

Furthermore, the reported formal "Correction Plan" is specifically intended to improve the nutritional content of meals served. State officials meet with SFA officials to consider the results of the SMI review, to specify changes in SFA policy (e.g., menus, ingredients, suppliers, cooking procedures) to improve the nutritional content of meals served, and, ideally, to bring them into compliance with DGA.

The interval between reviews is long enough—about five years—that improvements in nutrition are not immediately necessary. Failure to change procedures as specified in the "Correction Plan" will probably not be detected, yet willful noncompliance seems unlikely. Almost everyone in the system would like to improve the nutritional content of meals. However, staff changes, changes in menus and the nutritional content of ingredients, and different priorities (e.g., cost, staffing) compete for the attention of SFA management. Despite these concerns, it seems likely that the results of the reviews and the "Correction Plan" itself will improve the quality of future meals served.

QUALITY OF THE REVIEW INFORMATION

Granted these positive effects of preparing for the SFA reviews and of changed procedures in response to the results of these reviews, the primary focus of this report has been on procedures for collecting the results of the reviews and forwarding them to USDA. For that purpose, SMI reviews are only as good as the quality of underlying nutrient analysis. However, staff in many states questioned the quality of the reviews. In particular, they stated that the results of reviews would vary depending on who did the review.

Such concerns about inter-rater reliability are common in such programs (e.g., SSA disability reviews; see Parsons, 1991, and the literature it spawned) and are likely to be particularly salient in a new program such as SMI. It is usually nearly impossible to eliminate such reliability problems. Nevertheless, standard steps exist to minimize reliability problems. Such efforts usually begin with the promulgation of common procedures for how to do a review and how to han-

dle standard problems. They then proceed to formal initial and on-going training in the common procedures. Finally, a program to test the quality of the reviews can be put in place (i.e., re-reviewing a sample of completed reviews). Depending on the importance and available funding, initiatives to address concerns about inter-rater variation may be worth pursuing.

REPRESENTATIVENESS OF REVIEW AT THE SFA LEVEL

Even if it were assumed that the reviews are perfect, it is not clear how informative the results of a review (of meals served one given week in a given school) are about all the meals served in that school (or SFA). For example, if the *reviewed meals* meet the guidelines, does that imply that *all meals served* by the SFA meet the guidelines? Conversely, if the reviewed meals do not meet the guidelines, does that imply that no meals meet the guidelines? The distinction is important. Nutrition is a result of all meals served, not the meals that were reviewed. Put differently, if the results of an SFA's review were to become publicly available at an SFA level, is it reasonable for parents to complain? Or rest assured?

The minimum required SMI effort reviews only a very small sample of meals served, the reviews take place only every five years, and only one school in each selected SFA is reviewed for each menu plan and age group. Within that school, only one week's meals are reviewed. The choice of schools and weeks is not random but rather is done at the convenience of the reviewers. There are serious questions about the usefulness of this information. If every school in an SFA always served the same meals all the time, in exactly the same way, using exactly the same ingredients and suppliers, then one SMI review would be enough. That level of uniformity is, of course, not present. Instead, it is quite plausible that the variation—across years, across schools, across weeks—is so large that the results of one review provide little information about the nutritional content of the meals consumed in that district. If so, then any SFA-level reports to USDA have little information at the SFA-level and are thus not useful for parents.

The amount of variation—across years, across schools, across weeks—and therefore the usefulness of SFA-level data is, in principle, an empirical question. To address this issue, USDA could fund a

small pilot study. Such a pilot study would randomly select a small group of SFAs (perhaps a few dozen). In the selected SFAs, the pilot study would collect SMI type information across schools and through time. From these reviews, it would be possible to characterize the ability of an individual SMI review to provide information about the nutritional content of all meals provided by the SFA.

REPRESENTATIVENESS OF REVIEW AT THE STATE LEVEL

The USDA Strategic Plan requires information about *all meals served*. For the present purposes, USDA is only seeking information on the *meals that are reviewed*. Review processes can only collect information about meals reviewed. Reviews are expensive; reviewing a large number of meals could be very expensive. However, under plausible assumptions and procedures, reviews of a small number of meals are informative about all meals served.

If each review is properly done, then standard arguments from statistical sampling imply that we can construct a statistically accurate portrait of all meals served by a group of SFAs (e.g., a state) by averaging results across multiple reviews and across individual weeks from individual schools from multiple districts. This would be true despite the fact that no individual review provides a complete characterization of the meals provided by an SFA.

For this standard statistical sampling argument to apply, however, it is necessary for standard random sampling assumptions to apply. For this situation that means:

1. Random assignment of which SFAs are to be reviewed in a given year (e.g., perhaps random assignment to each of the five years of the review cycle).
2. Random assignment of which schools within the SFA are to be reviewed; otherwise, SFAs might pick the schools with the “best” nutritional content.
3. Random assignment of which week during the school year reviews might occur; otherwise, the timing of the review might be correlated with particularly good or bad meals (e.g., around holidays or the beginning or ending of the school year).

Furthermore, the review week must be a surprise. Otherwise, an SFA might substitute a “better” (more nutritious) menu for the review week.

In addition, if USDA’s goal is to construct a statistically precise estimate of all meals served, then standard sampling arguments suggest a different review schedule. Current regulations require one review per SFA in each five-year cycle, regardless of the size of the district. SFAs, however, vary greatly in their size. At the extreme, about half of the meals in New York State are served by the New York City public school system. Statistical considerations suggest allocating more resources (i.e., more reviews, perhaps more than every five years) to such large SFAs, and fewer resources (i.e., fewer reviews, perhaps less frequently than every five years) to smaller SFAs. Estimating how much more would require the results of a pilot study like the one discussed above.

Such an approach has a precedent: Current CRE regulations already promote more intensive efforts in larger districts. Under the Expanded Review Cycle, “State Agencies are encouraged to conduct administrative reviews of large school food authorities and of any school food authorities which may benefit from a more frequent interval than the 5-year cycle required by paragraph (c)(1).”¹

Adjusting the intensity of the review schedule with the size of the SFA is also attractive from a burden perspective. Many state officials expressed concerns about the burden of SMI reviews for small SFAs. For small SFAs, food service is a small-scale operation. Nebraska suggested that FNS should accept data aggregated by school size, since they have so many very small SFAs. In Texas, 50 percent of the students are in 46 SFAs and the other 50 percent are spread out over more than 1,000 SFAs. According to the state staff, many of these small SFAs feel that SMI is beyond them because they do not have the necessary education or expertise. In most small SFAs, staff have little nutritional training, and the cook is often the only food service staff person. In such situations, SMI reviews are a great burden.²

¹Paragraph (c)(1) states that “at a minimum, State Agencies shall conduct administrative reviews of all school food authorities at least once during each 5-year review cycle,” 210 USC 18.

²These might also be the SFAs whose meals have particularly poor nutritional content.

State officials expressed concern that SFAs would pull out of the program once they knew FNS would require the collection of nutritional content.

USDA has already partially moved toward lessening this burden by allowing less-intensive review of RCCIs.³ Careful consideration of less-intensive review for small SFAs might be worthwhile. Exempting small SFAs—under 1,000 students—would exclude 43 percent of the SFAs, but only 5 percent of the students from SMI.⁴ Eliminating (or at least scaling back) review of these small SFAs might lower resistance to the program and the burden of the unfunded mandate on the state authorities. The cost in the completeness of the data would be small.

CONCLUSION

This final chapter has reviewed broader issues relating to the SMI program. We discussed the positive effects of SMI reviews arising from efforts to prepare for the review and from changes in meals due to the results of the review.

This report focused on how states should report the results of SMI reviews to USDA. For that purpose, the quality and representativeness of the underlying review results are crucial. We presented three concerns about current procedures and suggested some actions USDA could undertake to address these concerns.

USDA is aware of these concerns, and similar issues arise in the CRE process. The SMI review process is still in its first cycle. Now, as the first cycle winds down and as USDA considers how states should report SMI results, is an appropriate time to consider the research activities and operational changes discussed in this chapter.

However, it is important to note the concerns expressed by the states about the effort required to perform the SMI reviews. How to proceed with the review program requires balancing the direct effects on the nutritional content of meals, the utility of the aggregated data

³FNS Memorandum #99-5; 1999.

⁴The Gallup Organization and PROMAR International, 1999.

(given the quality of the underlying reviews), and the statutory requirement against the required effort by state and SFA staff. Staff in several states argued strongly that they did not believe the effort was worthwhile given the perceived benefit.

Appendix A
PROTOCOL FOR DATA COLLECTION

Date: _____

Name: _____

Agency: _____

Title: _____

Phone Number: _____

Name: _____

Agency: _____

Title: _____

Phone Number: _____

Name: _____

Agency: _____

Title: _____

Phone Number: _____

Name: _____

Agency: _____

Title: _____

Phone Number: _____

FNS hopes to ultimately be able to aggregate nutrient analysis information to the state and national level. To do this, it needs certain data elements, and these data elements have to be in electronic format for each School Food Authority (SFA) in the state. This project will look at what seven states are currently doing and what data elements are being collected. FNS does not want us to recommend major changes to the way that your state is currently collecting the SMI information. Instead, we will be looking at what you are doing and what minor changes you could make in order to get FNS what it needs.

RAND plans to adhere to the following timeline for this project. As you can see, there is quite a bit of time for comments from FNS. FNS plans to share the preliminary results with the states and give the states an opportunity to comment on the findings before RAND completes any of the memos or reports.

TIMELINE FOR USDA CNAP TASK #4

School Meal Program Government Performance and Results Act of 1993 Standards

Item/Deliverable	Tentative Date
Data collection protocols for state visits finalized	5/21/99
Fieldwork begins	6/1/99
Fieldwork ends	9/1/99
First memo draft delivered to FNS	10/1/99
FNS provides comments to RAND	10/22/99
First memo revised delivered to FNS	11/5/99
FNS provides comments to RAND	11/26/99
Second memo draft delivered to FNS	12/24/99
FNS provides comments to RAND	1/21/00
Second memo revised delivered to FNS	2/4/00
FNS provides comments to RAND	2/25/00
Report draft delivered to FNS	3/24/00
FNS provides comments to RAND	5/19/00
Final report text delivered to FNS	6/9/00
Final report documents delivered to FNS	8/11/00

BACKGROUND QUESTIONS

1. How many SFAs are there in your state?

SFAs DK

2. How do you define an SFA? Is it a school district or something else?

3. When did your state begin SMI reviews?

1996/1997 1997/1998 1998/1999 Haven't started DK

4. Why did you start then as opposed to earlier or later?

5. How many SMI reviews were completed in

1996/1997? Reviews DK

1997/1998? Reviews DK

1998/1999? Reviews DK

6. How do you define a completed review?

7. When do you expect to complete the first round of SMI reviews?

1998/1999 1999/2000 2000/2001

2001/2002 2002/2003 DK

8. Do you think your state will need to make any changes in the future to process or staffing in order to complete the SMI reviews in 5 years?

9. Are SMI reviews done in conjunction with CRE reviews?

Yes No DK

10. If you do SMI reviews in conjunction with CRE, did you have to add staff to do this? What kind of training was involved?

11. Do your reviewers have access to e-mail?

Yes No DK

12. Do your reviewers have access to the Internet?

Yes No DK

13. Is there any other software (i.e., MS Excel) that reviewers use for completing reviews? If so, what? Is the same software used at the state level and at the SFA level?

Yes No DK

14. How many people are involved in doing SMI reviews and analysis?

_____ People

15. Where are they located? For whom do they work?

16. What are each of their roles in the SMI reviews?

17. Does the state agency have access to the nutrient analysis information?

Yes No DK

18. Do you feel that the SMI reviews are necessary to bring school meals into compliance with the Dietary Guidelines for Americans and the Recommended Daily Allowances?

Yes No DK

Comments:

19. Do you think it would be difficult for the reviewers in this state to provide information to FNS directly?

Yes No DK

Comments:

PROCESS IN THE STATE

We are trying to create a flowchart that shows how and where the information is collected, whom the information is passed on to, when and how the information is revised, and what format the information is in at every stage. I would like to go through the process separately for an SFA using a food-based system and an SFA using a nutrient-based system, since these processes are likely to be different. Bear in mind that FNS will require you to provide the data it requests for both food-based and nutrient-based systems.

1. Who collects the raw information for nutrient analyses on food offered in any given SFA?

2. With what organization is this person employed?

3. In what format is the information collected? Does this format change over the course of the review? For example, if the initial information is collected on hard copy, is it ever converted to an electronic version?

4. Who performs the nutrient analysis of this information?

5. Are there any steps between the initial collection of information and the nutrient analysis? If so, what are they and who performs them?

6. Is the nutrient analysis ever revised after it is initially performed? If so, when and by whom? Where is the revision information recorded?

7. How often are nutrient analyses usually revised?

8. Are data elements ever added or deleted from the information during this process?

9. Is the information aggregated in some way other than at the state level? For example, at a district or regional level? If so, at what level?

10. Where are SFA-level records kept and in what format?

11. When is the information sent to the state and by whom?

12. How is the information sent to the state? Electronically? Hard copy? If electronically, please describe the protocols used. For example, is the information recorded on a diskette? Sent by e-mail? Other?

13. Where is the information kept and in what format? If applicable, please give a name and telephone number for the person who would have this information at the state level.

14. Does the state do an independent nutrient analysis for SMI reviews, or does the state review existing analyses, or both? In which cases does the state do independent reviews? In which cases does the state review nutrient analyses performed elsewhere? (Keep in mind that it is possible for the state to do both if it reviews nutrient analyses done by an SFA using a NuMenus or Assisted NuMenus system but does the actual nutrient analyses for SFAs using food-based systems.)

15. At what point would it be best to have the nutrient analysis information sent to FNS? From the state? From the reviewers themselves? Why?

16. Which of these steps, if any, would need to change in order to meet FNS's goals for the selected data elements being sent in electronic format?

17. It is possible that, in the future, FNS may be able to negotiate with the companies that have created the nutrient analysis software to add a function where you would be able to create the report for FNS right from the software. If that were to happen, what changes would you need to make to your current procedure?

18. Which of the required data elements are currently missing from the software package you are using for your nutrient analyses?

19. If the software companies do not agree to add this function, how will you incorporate the additional elements into an electronic report for FNS?

20. Do you think that there are any data elements that should be added to or deleted from the list to send to FNS? If so, which items and why?

21. Do you have any opinion on sending the information to FNS electronically? Will this create any problems for your state?

22. How often do you think the states should have to report this information to FNS? FNS is required to prepare an annual strategic plan. Therefore, it is leaning toward annual collection of this information. Would this cause problems for your state?

23. Can you think of any alternatives for any of the processes we have discussed so far?

24. FNS would like us to solicit comments from the state about this process. Do you have anything that you would like us to pass on to them?

DATA ELEMENTS

Based on conversations with FNS, the following data elements will be necessary in order to aggregate the information at the state or national level in a way that will be useful. The data elements will include both the measures of the eight quantitative and three qualitative standards for each SFA, as well as the standards themselves. These standards are necessary because FNS may not have access to the standards an SFA is using, especially if it is using a nontraditional USDA-approved system.

In the "Type" column, C indicates that a character response is required; N indicates that a numeric response is required.

Element	Reporting Format	Type	Notes
Unique reference code for analysis	_____	C	Unique code for FNS: State will not repeat reference code for any future or past analysis
Name of SFA	_____	C	
Contact Person for Analysis	_____ (First)	C	
Contact Person Phone #	_____ (Last)	C	
Contact Person E-mail	_____	C	
Contact Person Address, line 1	_____	C	
Contact Person Address, line 2	_____	C	
Contact Person Address, line 3	_____	C	
Contact Person City	_____	C	
Contact Person State	____	C	
Contact Person Zip Code	_____ _____ _____	N	
Name of Person Doing Review	_____	C	
Name of Person Doing Analysis	_____	C	
Start Date of Review Week	_____ / _____ / _____ _____ (MM/DD/YYYY)	N	
End Date of Review Week	_____ / _____ / _____ _____ (MM/DD/YYYY)	N	

Date Analysis Closed	<input type="text"/> <input type="text"/> <input type="text"/> (Month)	N
State in Which Review Was Done	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/> (Year)	N
Type of School Food Authority	<input type="text"/>	C N 1=Public School District 2=Private School or District 3=Residential Child Care Institution 4=Other
Number of Schools in SFA	<input type="text"/> <input type="text"/> <input type="text"/> <input type="text"/>	N
Menu Planning System Used	<input type="text"/>	C N = NuMenus A = Assisted NuMenus T = Traditional Food-Based E = Enhanced Food-Based O = Other USDA-Approved System
Clarification of Other USDA-Approved System	(free form)	C Define Other USDA-Approved System(s) Used
Was Analysis for Lunch Only or Lunch and Breakfast?	<input type="text"/>	C L = Lunch Only B = Both Lunch & Breakfast
Analysis Weighted?	<input type="text"/>	C Y = Yes, N = No
Was a Plan of Correction Needed?	<input type="text"/>	N 0=No 1=Yes
Lowest Grade/Age Range Used for Analysis	<input type="text"/>	C P = Pre-Kindergarten/Invalid Response K = Kindergarten/Invalid Response 0 = Invalid Response/Infant 1 = First Grade/1st Year 2 = Second Grade/2nd Year (and so on)

66 State Monitoring of NSLP Nutritional Content

Highest Grade/Age Range Used for Analysis	_ _	C	P = Pre-Kindergarten/Invalid Response K = Kindergarten/Invalid Response 0 = Invalid Response/Infant 1 = First Grade/1st Year 2 = Second Grade/2nd Year (and so on)
Analysis Done by Grade Range or Age Range	_ _	C	G = Grade Range
**Average Daily Number of Lunches Served During Week for Which Analysis Done	_ _ _ _ _	N	A = Age Range
Actual Content from Analysis Software Output:			
Caloric content (kcal)	_ _ _ _	N	
Fat content (g)	_ _ _ .	N	
Saturated Fat content (g)	_ _ _ .	N	
Protein content (g)	_ _ _ .	N	
Calcium content (mg)	_ _ _ _ .	N	
Iron content (mg)	_ _ _ .	N	
Vitamin A content (RE)	_ _ _ _	N	
Vitamin C content (mg)	_ _ _ .	N	
Cholesterol content (mg)	_ _ _	N	
Sodium content (mg)	_ _ _ _	N	
Fiber content (g)	_ _ _ .	N	
Standards for Menu Plan Used:			
Caloric content (kcal)	_ _ _ _	N	
Fat content (g)	_ _ _ .	N	
Saturated fat content (g)	_ _ _ .	N	
Protein content (g)	_ _ _ .	N	
Calcium content (mg)	_ _ _	N	
Iron content (mg)	_ _ _ .	N	
Vitamin A content (RE)	_ _ _ _	N	
Vitamin C content (mg)	_ _ _ .	N	
Comments	(free form)	C	Space for any clarification comments from the SFA

Appendix B

INDIVIDUALS INTERVIEWED IN THE SEVEN STATES

Table B.1
Individuals Interviewed in California

Individual Interviewed	Agency	Title
Jean Naylor	State Department of Education, Field Services Unit	Child Nutrition Supervisor II
Louise Casias	State Department of Education, Field Services Unit	Child Nutrition Supervisor I
Violet Henry	State Department of Education, Field Services Unit	Child Supervisor I
Valerie Fong	State Department of Education, School Nutrition Programs Unit	Staff Services Manager II
Jan Barnhouse	State Department of Education, School Nutrition Standards Unit	Child Nutrition Supervisor I
Andrew Laufer	State Department of Education, Field Services Unit	Child Nutrition Supervisor I
Cindy Schneider	State Department of Education, School Nutrition Standards Unit	Child Nutrition Consultant
Marily Briggs	State Department of Education, School Nutrition Services Division	Director

Table B.2
Individuals Interviewed in Georgia

Individual Interviewed	Agency	Title
Annette Bomar Hopgood	Georgia Department of Education	Director, School of Community Nutrition
Judieth Hunt	Georgia Department of Education	Education Grant Program Consultant
Eugenia Seay	Georgia Department of Education	School Nutrition Program Manager

Table B.3
Individuals Interviewed in Nebraska

Individual Interviewed	Agency	Title
Connie Stefkovich	Nebraska Department of Education	Administrator– Nutrition Services
Shawn Voudracek	Nebraska Department of Education	Consultant– Nutrition Services
Alisanne Ells	Nebraska Department of Education	Consultant– Nutrition Services
Mary Ann Brennan	Nebraska Department of Education	Consultant– Nutrition Services

Table B.4
Individuals Interviewed in New Jersey

Individual Interviewed	Agency	Title
Kathy Kuser	Bureau of Child Nutrition Programs, New Jersey Department of Agriculture	State Director
Barbara Guarneri	Bureau of Child Nutrition Programs, New Jersey Department of Agriculture	Program Development Specialist I-Public
Joanne Lontz	Bureau of Child Nutrition Programs, New Jersey Department of Agriculture	Program Development Specialist I-Nonpublic
Jill Niglio	Bureau of Child Nutrition Programs, New Jersey Department of Agriculture	Regional Coordinator-Central

Table B.5
Individuals Interviewed in New York

Individual Interviewed	Agency	Title
Frances O'Donnell	Child Nutrition Program Administration, New York State Education Department	Coordinator
Linval Foster	Child Nutrition Program Administration, New York State Education Department	Associate
Debbie Favro	Child Nutrition Program Administration, New York State Education Department	Assistant
Sandy Sheedy	Child Nutrition Program Administration, New York State Education Department	Nutrition Program Representative

Table B.6
Individuals Interviewed in Texas

Individual Interviewed	Agency	Title
John Perkins	Texas Education Agency, Child Nutrition Programs	Director
Debbie Owens	Texas Education Agency, Child Nutrition Programs	Program Director for Compliance and Monitoring

Table B.7
Individuals Interviewed in Wisconsin

Individual Interviewed	Agency	Title
Julie Cox	Department of Public Instruction, Food and Nutrition Services	Child Nutrition Program Consultant
Carol Philipps	Department of Public Instruction, Food and Nutrition Services	Program Coordinator

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